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Oestergren

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(54) **VEHICLE WINDOW SPRAYING NOZZLE
ARRANGEMENT**

USPC 239/284.1
See application file for complete search history.

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(56) **References Cited**

U.S. PATENT DOCUMENTS

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(SE)

4,212,425 A * 7/1980 Schlick B05B 1/24
137/341
5,163,619 A * 11/1992 Wada B60S 1/52
239/284.1

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(Continued)

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FOREIGN PATENT DOCUMENTS

DE 4303113 A1 8/1994
DE 19958196 A1 6/2001

(Continued)

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OTHER PUBLICATIONS

ISR for PCT/US2012/057059 mailed Nov. 7, 2012.

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(57) **ABSTRACT**

The present invention relates to a vehicle window spraying nozzle arrangement comprising a first feeder arranged for feeding window fluid and a nozzle head for dispensing window fluid towards a window when mounted. The nozzle head being arranged to be mounted to a vehicle body part with a first main surface facing towards the vehicle exterior and a second main surface facing towards the vehicle interior. The nozzle head is arranged to be connected to the first feeder. The assembled first feeder and the nozzle head are comprised in a spraying nozzle chain assembly which is arranged for mounting in a vehicle body part aperture in the vehicle body part from the second main surface towards the first main surface. The vehicle window spraying nozzle arrangement furthermore comprises a cover part arranged for mounting to said vehicle body part aperture from the first main surface towards the second main surface.

13 Claims, 5 Drawing Sheets

